

Delta Hot Spots for Pesticides of Concern

| Pesticide | Known Hot Spot | Potential Hot Spot |
|------------------|-----------------------|---------------------------|
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Source:

Known Toxic Hot Spot: Exceed water or sediment quality objectives, water or sediment exhibit toxicity associated with toxic pollutants, and tissue toxic pollutant levels of organisms collected from the site exceed levels established by OEHHA, FDA, DHA, NAS.

Potential Toxic Hot Spot: Sites with existing information indicating possible impairment, but without sufficient information to be classified as "known" toxic hot spot.

D-032806

Water Quality Goals Established by the State of California, USEPA, and the Regional Water Quality Control Boards

| Pesticide of Concern | California Inland Surface Waters Plan ^c Numerical Water Quality Objectives Freshwater Aquatic Life Protection | | | | USEPA National Ambient Water Quality Criteria ^e Freshwater Aquatic Life Protection Recommended Criteria | | | Regional Water Quality Control Boards ^f 1995 Water Quality Control Plans | | | | | |
|----------------------|--|---------------|----------------|-----------------------|--|-----------------|--|--|------------------|-------------------|-------|----------|-----|
| | | | | | | | | Region II | | | | Region V | |
| | 4-day average | Daily Average | 1-hour Average | Instantaneous Maximum | Continuous Concentration (4 day Average) | 24-hour Average | Maximum Concentration (1-hour Average) | Value | Sacramento River | San Joaquin River | Delta | Value | Bay |
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D-032807

Summary Effects of Pesticides of Concern that Occur in the Bay/Delta Estuary

| Pesticide | Effects |
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Summary Concentrations of Pesticides of Concern in Bay/Delta Estuary Biota

| Pesticide | Concentration (ppm wet weight) | | | | | Concentrations Exceeding Alert Levels in Delta * | Comments |
|-----------|--------------------------------|------|------|------|------|--|----------|
| | Mussel | Clam | Fish | Bird | Seal | | |
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* Alert Levels refer to maximum tissue residue levels that are protective of human health. They include:

- 1) the median international standard (MIS), which is a general guideline of what other nations consider to be elevated contaminant levels in fish and shellfish tissue;
- 2) the U.S. Food and Drug Administration (FDA) action levels, which represent maximum allowable concentrations for some toxic substances in human foods;
- 3) the State Department of Health Service's maximum allowable residue levels (MARL), established to ensure that a consumer of specified fish or wildlife species does not exceed the permissible intake level for particular contaminants.

Source: Monroe, Michael W., Judy Kelly, and Nina Lisowski. 1992. State of the Estuary. San Francisco Estuary Project. 270 pp.

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Concentrations of Pesticides of Concern in Waters of the Bay/Delta Estuary (ppb)

| Pesticide | Range of Total Concentrations | State Water Quality Objective Upstream of San Pablo Bay | Any Samples Exceeding State Water Quality Objectives? |
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Concentrations of Pesticides of Concern in San Francisco Bay Sediments (ppm)

| Trace Element | Mean | Range |
|---------------|------|-------|
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**CALFED Ecosystem Water Quality
Water Quality Objectives
Metals**

| <i>Parameter</i> | <i>4-Day Average Objectives</i> | | <i>Location-Specific Objectives</i> | |
|------------------|---------------------------------|-------------------------------|---|-------------------------------|
| | USEPA | SF Bay Region Basin Plan | Central Valley Region Basin Plan | |
| Cadmium | 2.2 µg/l | 1.1 µg/l (100 mg/l hardness) | River and tributaries from above State Hwy 32 bridge at Hamilton City | .65 µg/l (100 mg/l hardness) |
| Copper | 9.0 µg/l | 11.8 µg/l (100 mg/l hardness) | River and tributaries from above State Hwy 32 bridge at Hamilton City | 12.9 µg/l (100 mg/l hardness) |
| Mercury | 0.012 µg/l | 0.025 µg/l | -- | -- |
| Selenium | 5 µg/l | -- | Water supplies used for waterfowl habitat in the Grassland Water District, San Luis National Wildlife Refuge, and Los Banos State Wildlife Area | 2 µg/l (monthly mean) |
| Zinc | 120 µg/l | 23 µg/l (100 mg/l hardness) | River and tributaries from above State Hwy 32 bridge at Hamilton City | 32.7 µg/l (100 mg/l hardness) |

CALFED Ecosystem Water Quality

Water Quality Objectives

Organics/Pesticides

| Parameter | 4-Day Average Objective | 24-hour Average Objective |
|--------------|-------------------------|---------------------------|
| Carbofuran | -- | -- |
| Chlordane | -- | 0.0043 µg/l |
| Chlorpyrifos | 0.041 µg/l | -- |
| Diazinon | -- | -- |
| DDT | -- | 0.0010 µg/l |
| PCBs | -- | 0.014 µg/l |
| Toxaphene | 0.0002 µg/l | -- |

Source: USEPA National Ambient Water Quality Criteria, Freshwater Aquatic Life Protection